

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants	:	Mohamad Nourmohamadian et al.	)	Group Art Unit 2185
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Appl. No.	:	10/655,948	)	
			)	
Filed	:	09/05/2003	)	
			)	
For	:	VIRTUAL TAPE STACKER	)	
			)	
Examiner	:	Campos, Yaima	)	
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**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Honorable Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22213-1450

Dear Sir:

Applicants request review of the final Office action dated 01/31/2007 regarding the above-identified application for the reasons set forth below. The time to respond has been extended two months to 07/02/2007. Claims 16-24 are pending and were all rejected under 35 U.S.C. §102(b) as being anticipated by Keele (US Patent 5,455,926). Claim 24 was further rejected under 35 U.S.C. §103(a) as unpatentable over Keele in view of Dailey (US 2004/0098244). An amendment after final to address the examiner's objections to claims 20 and 23 was filed on 04/02/2007 and entered accordingly on 04/16/2007.

Applicants request a panel review of each and every rejection stated above. No amendments are filed with this request. This request is filed with a Notice of Appeal. The specific grounds for Applicants' review request are stated in the five pages attached below.

Applicants' specification describes a virtual sequential stacker:

[0034] As shown in FIG. 8A, a virtual sequential stacker **800** has multiple virtual tape volumes **500** organized in a sequential order **820**. The first virtual tape volume **812** is automatically "mounted" into the virtual tape drive by default. Once a virtual tape volume **500** is mounted, it behaves and operates as if it was loaded in a conventional tape drive. If the application program **130** (FIG. 3) unloads a virtual tape volume **500**, the next consecutive virtual tape volume **500** is automatically loaded.

In contrast, Keele describes an optical disk library that emulates a tape library; and like a tape library, Keele does not teach, disclose or suggest, either explicitly or inherently, a mechanism that autoloads virtual tapes into a virtual tape drive in a predetermined sequential order: See, e.g. Keele column 29, emphasis added:

The function of the jukebox is to store disks in physical slots until the disks are requested by the operator or host . . . each optical disk appears to the host as a collection of one or more virtual tapes. . . . A virtual tape can be selected by the operator for mounting . . . If the requested volume resides on a disk which is not currently mounted, the disk will be retrieved from its storage slot by the robotics of the jukebox.

**Claim 16 cites:** A virtual tape stacker comprising:

. . . wherein, in response to an eject command from the server, the controller unloads one of the virtual tape volumes from the virtual tape drive and loads a next consecutive one of the virtual tape volumes into the virtual tape drive according to the sequential order.

The examiner goes through a lengthy argument with respect to each independent claim (16, 19 and 22) to assert that Keele discloses loading virtual tapes in a sequential order. See, for example: "Keele's invention is able to load/unload a virtual tape that is next in the sequential order in which tapes are written to optical disks." Final Office action, page 8, lines 8-9. See also page 5, lines 1-2; page 12, lines 1-2. Among other things, however, the examiner does not establish that Keele teaches, explicitly or inherently, a controller that unloads a virtual tape volume and loads a next consecutive one in response to an eject command. Indeed, Keele requires the opposite, i.e. virtual tapes are loaded according to the receipt of a VSN (volume and serial number): "When MOST receives a mount message, it automatically locates the requested VSN and mounts it in the drive." Keele, column 37, lines 37-39, emphasis added. Nothing in Keele describes that these VSN requests are made in any particular order or that a VSN is requested for a next consecutive virtual tape in response to an eject command. As such, Keele does not read on claim 16 . Further, Keele does not read on claims 17 and 18, which depend from claim 16.

**Claim 17 cites:** The virtual tape stacker according to claim 16 further comprising:  
... pointers to the virtual tape volumes; and  
a virtual tape manager residing on the controller that accesses the pointers so as to determine the next consecutive one of the virtual tape volumes.

Keele does not read on claim 17 for the following additional reasons. The examiner equates the Keele tape map pointers in the Keele tape directory to the claimed pointers to virtual tape volumes. Final Office action, page 5, lines 9-12. In Keele, however, the tape map pointers are not used to determine the next consecutive virtual tape volume. Rather, Keele teaches that software or an operator determine which virtual tape to load through the VSN (volume and serial number). Only after a virtual tape is loaded do the tape map pointers come into play so as to load the tape map into the controller.

The tape map pointer 334 [Fig. 5] points to a respective tap map 348 of each virtual tape. . . .When a virtual tape VSN is mounted a copy of the tape map 340 is read into the controller 14.

Keele, column 44, lines 5-17, emphasis added.

Nothing in Keele describes that the VSN requests are determined by accessing the tape map pointers. The opposite is the case, i.e. the when the virtual tape having the requested VSN is mounted, then the tape map identified by the tape map pointer is read into the controller. Accordingly, Keele does not read on claim 17. Further, Keele does not read on claim 18, which depends from claim 17.

**Claim 18 cites:** The virtual tape stacker according to claim 17 further comprising:  
... wherein a physical tape volume corresponding to the tape cartridge is integrated into the virtual tape volume storage rotation.

For example, the applicants' specification describes the claim elements underlined above as:

[0035] As shown in FIG. 8A, one or more physical tape drives 350 may be incorporated into the virtual sequential stacker 800. . . The physical tape volume 840 automatically becomes part of the virtual tape volume storage rotation. After the last virtual tape volume 814 is un-mounted, the next tape to load into the virtual tape drive will be a write protected physical tape volume 840. . . . When the last physical tape volume 840 is un-mounted, the first virtual tape volume 812 is automatically loaded into the virtual tape drive.

Keele does not read on claim 18 for the following additional reasons. In rejecting claim 18, the examiner only asserts that the Keele MOST system can be used with a physical tape device; Final Office action, page 6, lines 6-8; and that data can be transferred between physical

tape and optical disk; lines 15-18. The examiner does not establish that the physical tape volume becomes part of the virtual tape volume storage rotation as claimed.

**Claim 19 cites:** A virtual tape stacker method comprising:

... storing in the volume management table a plurality of pointers to the data management tables so as to identify the location of the virtual tape volumes; and  
predetermining an access order for the pointers so as to define a sequential order for loading the virtual tape volumes into the virtual tape drive in response to eject commands from a server.

With respect to the claimed sequential order for loading virtual tape volumes into the virtual tape drive in response to eject commands, the examiner makes the same argument cited above with respect to claim 16. Final Office action, page 8, lines 8-9. That argument does not meet the examiner's prima facie burden of anticipation with respect to claim 19 as similarly argued with respect to claim 16, above.

With respect to the claimed predetermining step, the examiner equates the Keele tape map pointers in the Keele tape directory to the claimed pointers to data management tables. Final Office action, page 7, lines 8-11. In Keele, however, there is not a predetermined access order for the tape map pointers that define the sequential order for loading virtual tape volumes into the virtual tape drive. The examiner does not even assert that the Keele tape map pointers have a predetermined access order or that a tape map pointer access order defines a sequential order for loading virtual tape volumes. As such, Keele does not read on claim 19. Further, Keele does not read on claims 20 and 21, which depend from claim 19.

**Claim 20 cites:** The virtual tape stacker method according to claim 19 further comprising:

reading one of the pointers according to the access order;  
locating one of the data management tables according to the read pointer; and  
addressing a next consecutive one in the sequential order of the virtual tape volumes according to the located one of the data management tables.

Keele does not read on claim 20 for the following additional reasons. The examiner does not cite any portion of Keele that teaches the tape map pointers have a predetermined access order, as noted with respect to claim 19, above. As such, Keele does not disclose that the tape map pointers are read according to that access order, as claimed. Further, Keele does not read on claim 21, which depends from claim 20.

**Claim 21 cites:** The virtual tape stacker method according to claim 20 further comprising:

providing a physical tape volume loaded on a physical tape device; and  
integrating the physical tape volume in a storage rotation of the virtual tape volumes.

Keele does not read on claim 21 for the following additional reasons. As argued with respect to claim 18, above, the examiner does not establish that a physical tape volume becomes part of the virtual tape volume storage rotation. The physical tape volume is likewise not integrated in the storage rotation of the virtual tape volumes, as claimed here.

**Claim 22 cites:** A virtual tape stacker comprising:

... wherein the virtual tape manager indicates a sequential order for loading a next consecutive one of the virtual tape volumes into the virtual tape drive upon ejection of the loaded one of the virtual tape volumes.

With respect to the claimed sequential order for loading a next consecutive virtual tape volumes into a virtual tape drive upon ejection of a loaded virtual tape volume, the examiner makes the same argument cited above with respect to claim 16. Final Office action, page 12, lines 1-2. That argument does not meet the examiner's prima facie burden of anticipation with respect to claim 22 as similarly argued with respect to claim 16, above. Further, Keele does not read on claims 23 and 24, which depend from claim 22.

**Claim 23 cites:** The virtual tape stacker according to claim 22 further comprising:

a volume management table maintained in the virtual tape manager,  
a plurality of pointers to the virtual tape volumes stored in the volume management table,

wherein the sequential order of loading the virtual tape volumes into the virtual tape drive is determined by an access order of the pointers.

Keele does not read on claim 23 for the following additional reasons. The examiner equates the Keele tape map pointers in the Keele tape directory to the claimed pointers to virtual tape volumes. Final Office action, page 12, lines 12-15. As argued with respect to claim 17, above, the tape map pointers of Keele are not used to determine the next consecutive virtual tape volume. Rather, Keele teaches that software or an operator determine which virtual tape to load through the VSN. Only after a virtual tape is loaded do the tape map pointers come into play so as to load the tape map into the controller.

Further, Keele does not disclose an access order for the tape map pointers. The examiner provides a one page argument with respect to this element without citing any portion of Keele that even suggests that the Keele tape map pointers have an access order or that a sequential order of loading virtual tape volumes is determined by that access order as claimed. See final Office action, page 13. Further, Keele does not read on claim 24, which depends from claim 23.

**Claim 24 cites:** The virtual tape stacker according to claim 23 further comprising:  
a physical tape volume,  
wherein a last one of the virtual tape volumes is previous to the physical tape volume in the sequential access order and a first one of the virtual tape volumes is next from the physical tape volume in the sequential access order.

Keele does not read on claim 23 for the following additional reasons. As argued with respect to claim 18, above, the examiner does not establish with respect to Keele that a physical tape volume becomes part of the virtual tape volume storage rotation. Likewise here, the examiner specifically does not establish the last virtual tape volume is previous to a physical tape volume in an access order and a first virtual tape volume is next from the physical tape volume in access order, as claimed. Indeed, in the examiners specific argument regarding this element, which is set forth without any citation to Keele, the examiner fails to identify with respect to Keele, a corresponding first and last virtual tape volume with respect to a sequential access order, as claimed. See final Office action, page 14, lines 18-22; page 15, lines 1-4.

**There Is No Properly Asserted 35 USC §103(a) Rejection**

The examiner asserts that the apparent purpose for citing Dailey here is: "To further detail Keele's disclosure, Dailey discloses incorporating physical tape volumes within virtual tape volumes." To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP §2142. Here, the examiner does not assert that Dailey teaches or suggests a specific element of claim 24. As such, and in view of the simultaneous assertion that all claim 24 limitations are anticipated by Keele, the examiner has not stated a *prima facie* case of obviousness. Nor has the examiner given Applicants an opportunity to argue against this rejection. Specifically, Applicants can only dispute that Dailey does not "further detail Keele's disclosure."

In view of the above, Applicants respectfully request that the panel, including the examiner, review and reconsider the legal and factual basis of the rejections in the present application prior to the Applicants filing an appeal brief.

Respectfully submitted,

LAW OFFICE OF GLENN R. SMITH

Dated: 06/30/2007

By: /Glenn R. Smith 38308/.  
Glenn R. Smith, Esq.  
Registration No. 38,308